



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/051,750	01/18/2002	Heiner Ophardt	P802	5499

7590 02/27/2004

RICHES, MCKENIZE & HERBERT LLP
SUITE 1800
2 BLOOR STREET EAST
TORONTO, M4W 3J5
CANADA

EXAMINER

YUAN, DAH WEI D

ART UNIT	PAPER NUMBER
----------	--------------

1745

DATE MAILED: 02/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/051,750

Applicant(s)

OPHARDT, HEINER

Examiner

Dah-Wei D. Yuan

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15, 17 and 27-29 is/are rejected.
- 7) ☒ Claim(s) 16 and 18-26 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>04102002</u> | 6) <input type="checkbox"/> Other: ____ |

Art Unit: 1745

COMBINATION LIQUID DISPENSER AND ELECTROCHEMICAL CELL

Examiner: Yuan

S.N. 10/051,750

Art Unit: 1745

February 20, 2004

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-9,11-15,17,27 are rejected under 35 U.S.C. 102(e) as being anticipated by Nagura et al. (US 6,648,085 B2).

With respect to claims 1,2,17,27, Nagura et al. teach a fuel cell-powdered automobile (a combination) comprising a solid polymer fuel cell and a tank (reservoir), which delivers methanol (fuel) and water to the reforming unit (42). The electricity generated by the fuel cell is supplied to an electric motor and stored in a secondary battery. The fuel is dispensed from the tank using the electricity drawn from the fuel cell/secondary battery. See Abstract, Column 2, Lines 39-59; Column 5, Lines 21-52.

With respect to claim 3, atmospheric air is supplied to a cathode in the fuel cell. See Figure 5.

With respect to claims 4,8,9,14, methanol (methyl alcohol) is used as the fuel for the fuel cell. See Column 5, Lines 21-32.

With respect to claims 5-7, water is dispensed from the tank. See Figure 5. Water can be considered as a cleaning fluid or a disinfectant solution for a hygienic use.

With respect to claims 11,12,13,15, Nagura et al. teach the use of a pump (116) to dispense the fuel into an anode of the fuel cell. See Column 2, Lines 18-32.

3. Claims 1-9,11-15,17,27 are rejected under 35 U.S.C. 102(e) as being anticipated by Okaniwa (JP2001-247200).

With respect to claims 1,2,17,27, Okaniwa teach a combination comprising a solid polymer fuel cell (33), a methanol supply mechanism (20) (fluid dispenser) and a reservoir (methanol supply pipe 11 and liquid supply hose 19). The fuel cell is operated by hydrogen provided by a methanol modifying device (32) using methanol supplied through the changeover valve (14). The electricity generated by the fuel cell is used to operate the liquid supply mechanism (20) and a storage battery (35). See Abstract.

With respect to claim 3, atmospheric air is supplied to a cathode in the solid polymer fuel cell. See Figure.

With respect to claims 4,8,9,14, methanol (methyl alcohol) is used as the fuel for the fuel cell. See Column 5, Lines 21-32.

With respect to claims 5-7, water is also dispensed from the methanol supply pipe into the fuel cell. See Figure 5. Water can be considered as a cleaning fluid or a disinfectant solution for a hygienic use.

Art Unit: 1745

With respect to claims 11,12,13,15, Okaniwa et al. teach the use of a pump (13) to dispense the fuel into an anode of the fuel cell. See Column 2, Lines 18-32.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nagura et al. (US 6,648,085 B2).

With respect to claim 10, the disclosure of Nagura et al. et al. differs from Applicant's claims in that Nagura et al. do not describe the alcohol content in the tank. However, it is well known in the fuel cell art that efficiency and performance of the direct oxidation fuel cell depend on the alcohol content in the fuel mixture. Therefore, it would have been within the skill of the ordinary artisan to adjust the amount of the alcohol content in the tank to at least 20% depending on the performance requirement of the fuel cell system. *Discovery of optimum value of result effective variable in known process is ordinarily within skill of art. In re Boesch*, CCPA 1980, 617 F.2d 272, 205 USPQ215.

Art Unit: 1745

6. Claim 28,29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagura et al. (US 6,648,085 B2) in view of Dudfield et al. (US 5,601,936).

Nagura et al. disclose a dispenser/fuel cell combination as describe in Paragraph 2 above. However, Nagura et al. do not teach the combination comprising an alkaline electrolyte fuel cell or an acid electrolyte fuel cell. Solid polymer electrolyte fuel ell, phosphoric acid electrolyte and liquid alkaline electrolyte fuel cell are considered functionally equivalent, because they all have to be operated at a temperature not greater than 250°C as disclosed by Dudfield et al. See Abstract. Therefore, it would have been obvious to one of ordinary skill in the art to substitute an alkaline electrolyte fuel cell (or an acid electrolyte fuel cell) for the solid polymer fuel cell in the combination disclosed by Nagura et al.

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okaniwa (JP2001-247200).

With respect to claim 10, the disclosure of Okaniwa differs from Applicant's claims in that Okaniwa does not describe the alcohol content in the reservoir. However, it is well know in the fuel cell art that efficiency and performance of the direct oxidation fuel cell depend on the alcohol content in the fuel mixture. Therefore, it would have been within the skill of the ordinary artisan to adjust the amount of the alcohol content in the reservoir to at least 20% depending on the performance requirement of the fuel cell system. *Discovery of optimum value of result effective variable in known process is ordinarily within skill of art.* In re Boesch, CCPA 1980, 617 F.2d 272, 205 USPQ215.

Art Unit: 1745

8. Claim 28,29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okaniwa (JP2001-247200) in view of Dudfield et al. (US 5,601,936).

Okaniwa et al. disclose a dispenser/fuel cell combination as describe in Paragraph 3 above. However, Okaniwa et al. do not teach the combination comprising an alkaline electrolyte fuel cell or an acid electrolyte fuel cell. Solid polymer electrolyte fuel ell, phosphoric acid electrolyte and liquid alkaline electrolyte fuel cell are considered functionally equivalent, because they all have to be operated at a temperature not greater than 250°C as disclosed by Dudfield et al. See Abstract. Therefore, it would have been obvious to one of ordinary skill in the art to substitute an alkaline electrolyte fuel cell (or an acid electrolyte fuel cell) for the solid polymer fuel cell in the combination disclosed by Okaniwa.

Allowable Subject Matter

9. Claims 16,18-26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 16 would be allowable because the prior art does not disclose or suggest the reservoir is a collapsible reservoir, which collapses as fuel is dispensed. Claims 18-22,24-26 would be allowable because the prior art does not disclose or suggest the two electrodes and the electrolyte are all disposed within the reservoir. Claim 23 would be allowable because the prior art does not disclose or suggest the reservoir has walls formed from flexible sheet material, at least one of the electrodes comprising a thin layer applied to a wall of the reservoir.

Art Unit: 1745

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dah-Wei D. Yuan whose telephone number is (571) 272-1295. The examiner can normally be reached on Monday-Friday (8:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dah-Wei D. Yuan
February 22, 2004

